What is claimed is:

1. A method of TPSF-based optical imaging comprising the steps of:

injecting light at a plurality of wavelengths into an object to be imaged at one or more injection positions; and

detecting the injected light after diffusing in the object at one or more detection positions simultaneously for the plurality of wavelengths to obtain separate TPSF-based data for each of the wavelengths.

2. The method as claimed in claim 1, wherein said plurality of wavelengths provide different information about said object.

3. The method as claimed in claim 1, wherein said step of injecting comprises:

generating light from a laser light source; and

switching said light from said light source onto one of a plurality of optical fibers each corresponding to one of said injection positions.

4. The method as claimed in claim 3, wherein said light source comprises a plurality of lasers each operating at one of said plurality of wavelengths.

5. The method as claimed in claim 4, wherein an output of said lasers are combined prior to said switching, said injection position being the same at one time for all of said wavelengths.

6. The method as claimed in claim 5, wherein said plurality of wavelengths provide different information about said object.

7. The method as claimed in claim 1, wherein said step of detecting comprises positioning a bundle of optical fibers at each one of said one or more detection positions, each fiber of said bundle being for a separate one of said wavelengths.

8. The method as claimed in claim 7, wherein said step of detecting comprises placing a faceplate bandpass filter over a camera and positioning together groups of said detection optical fibers for a same wavelength over said filter.

9. The method as claimed in claim 8, wherein said camera is a picosecond resolution CCD camera, said TPSF-based imaging being accomplished in the time-domain.

10. The method as claimed in claim 1, wherein said imaging is medical imaging.

11. The method as claimed in claim 2, wherein said imaging is medical imaging, and said different information is complementary to provide physiological information.

12. The method as claimed in claim 1, wherein said step of injecting comprises injecting said light at each of said wavelengths simultaneously at different injection positions, wherein said injected light travelling to at least some of said detection positions comprises light of more than one of said wavelengths.

13. The method as claimed in claim 12, wherein said plurality of wavelengths provide a same information about said object, said method allowing faster acquisition of said data over an imaging area.

14. A TPSF-based optical imaging apparatus comprising:

at least one source providing light at a plurality of wavelengths;

at least one injection port coupled to said at least one source for injecting said light into an object to be imaged at one or more injection positions;

at least one detection port collecting said light after diffusion in said object;

a wavelength selection device coupled to said at least one detection port for separating said plurality of wavelengths; and

a camera detecting said plurality of wavelengths separated by said device.

15. The apparatus as claimed in claim 14, wherein said at least one source comprises a plurality of tunable lasers.

16. The apparatus as claimed in claim 14, wherein said at least one source is selectively connected to one of a plurality of said injection ports using an optical switch.